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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,254	09/10/2003	Gwo-Bin Lee	LEEG3002/EM	4002

23364 7590 04/07/2006

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EXAMINER

MOONEY, MICHAEL P

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/658,254

Applicant(s)

LEE, GWO-BIN

Examiner

Michael P. Mooney

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) 21-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

The cancellation of claim 3 is acknowledged.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-2, 4-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handique et al. (7010391) and further in view of Shipwash (20040062468).**

Handique et al. teaches an integrated analytical biochip (fig. 1) comprising: a bottom plate, an intermediate plate, a top cover plate (See fig. 8C infra.), and integrating mechanisms including: a micro reaction tank (fig. 1; Reaction/Detection1) for containing samples for proceeding to PCR reaction (fig. 1; Reaction/Detection1; col. 44 lines 45-65);

Handique et al. does not explicitly state "plurality of micro channels for separating cloned samples".

Shipwash, however, teaches a plurality of micro channels for separating samples (Abstract; fig. 3). Although Shipwash does not expressly state the phrase "cloned samples" it would have been obvious to do so because Shipwash teaches cloning (e.g., paragraph 0310) and it is conventional to separate cloned samples in the type of system such as fig. 3 of Shipwash. One of ordinary skill would have been motivated separate cloned samples in the type of system such as fig. 3 of Shipwash for the purpose of testing, e.g., DNA samples. (paragraph 0310; fig. 3).

Handique et al. and Shipwash are combined by taking the technology of Handique et al. which teaches a heater and temperature detectors inside a PCR micro reaction tank (fig. 1) and applying it to the separation of cloned samples technology of Shipwash to obtain the instant invention of a PCR micro reaction tank with inside heater and temperature detectors and a plurality of micro channels for separating cloned samples. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make such a combination for the purpose of testing multiple DNA samples.

Furthermore, Handique et al. teaches a set of optic fiber structures (01, 02) for detecting signals of samples, wherein said micro reaction tank comprises a micro heater for heating samples (fig. 1; heater3), and a micro temperature detector for detecting the temperature of samples in said micro reaction tank (col. 14 lines 40-52; col. 15 lines 5-45; col. 17 lines 15-40; col. 18 lines 18-21) , and wherein said micro heater and said micro temperature detector are both mounted on the same layer of said bottom plate inside said micro reaction tank (fig. 1). Thus claim 1 is rejected.

Handique et al. teaches wherein variations of temperature in said micro reaction tank is controlled by an IC controller (e.g., col. 31 lines 42-57). Thus claim 2 is rejected.

Handique et al. teaches wherein said micro heater and said micro temperature detector are formed by an electrical resistance layer (col. 14 lines 40-52; col. 15 lines 5-45; col. 17 lines 15-40; col. 18 lines 18-21). Thus claim 4 is rejected.

Although Handique et al. does not explicitly state "wherein said electrical resistance layer is made of Pt/Cr or Pt/Ti" it would have been obvious to do so because it is conventional to use micro heaters and temperature detectors that are formed by electrical resistance layer is made of Pt/Cr or Pt/Ti. One of ordinary skill would have been motivated to use micro heaters and temperature detectors that are formed by electrical resistance layer is made of Pt/Cr or Pt/Ti for the purpose of conforming to art established principles which produce successfully working devices. (fig. 1). Thus claim 5 is rejected.

Although Handique et al. does not explicitly state "micro reaction tank further comprises an insulating layer for insulating samples from said micro heater and said micro temperature detector to avoid short circuitry, and a conductive layer for electrical connection" it would have been obvious to do so because it is conventional to insulate tanks/reservoirs/chambers from said micro heater and said micro temperature detector to avoid short circuitry and to provide and a conductive layer for electrical connection.

One of ordinary skill would have been motivated to insulate tank reservoirs/chambers from said micro heater and said micro temperature detector to avoid short circuiting and one further would have been motivated to provide and a

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conductive layer for electrical connection for the purpose of providing a dependable working device. (fig. 1). Thus claim 6 is rejected.

By the reasons and references given above each and every element of each of claims 7-9 is rendered obvious by Handique et al. and conventional principles in the art. Thus claims 7-9 are rejected.

Regarding claim 10, it is conventional in the art to provide a system wherein the IC controller comprises a filter for filtering signals outputted from said micro temperature detector so as to lower the value of noise and increase the signal/noise (S/N) ratio, an analog/digital converter (ADC) for converting analog signals to digital signals, and a pulse width modulator (PWM) for reading temperature signals so as to modulate the pulse width of the power source for said micro heater so as to control the temperature.

One of ordinary skill would have been motivated to provide a system wherein the IC controller comprises a filter for filtering signals outputted from said micro temperature detector so as to lower the value of noise and increase the signal/noise (S/N) ratio, an analog/digital converter (ADC) for converting analog signals to digital signals, and a pulse width modulator (PWM) for reading temperature signals so as to modulate the pulse width of the power source for said micro heater so as to control the temperature for the purpose optimizing system characteristics (e.g., fig. 1; fig. 3A-3B). Thus claim 10 is rejected.

Each and every element of each of claims 12-20 is rendered by the reasons and references given above and conventional principles in the art. Thus claims 12-20 are rejected.

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Mar. 7, 2006

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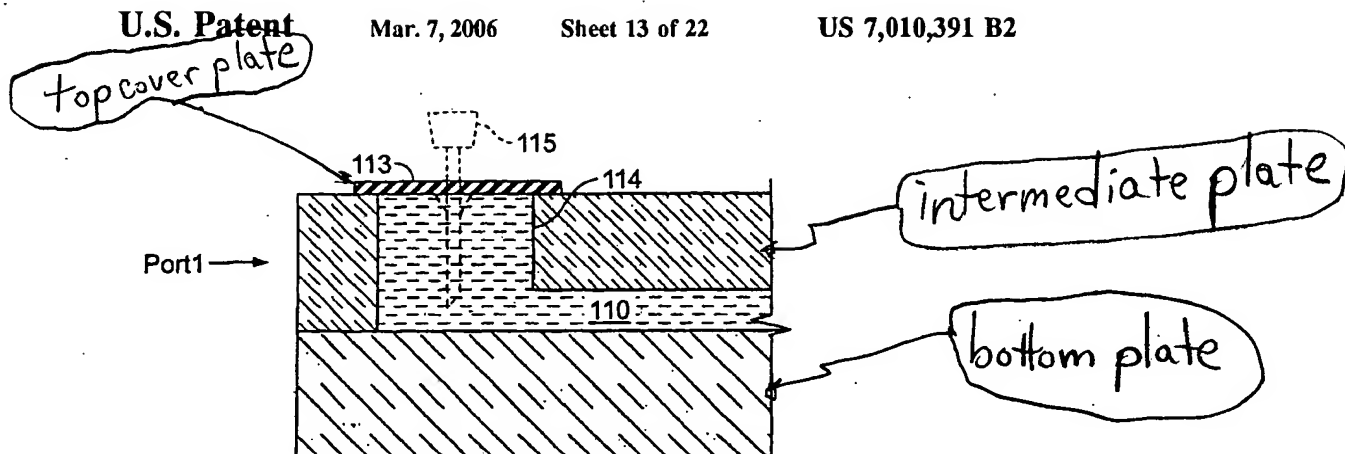


FIG. 8C

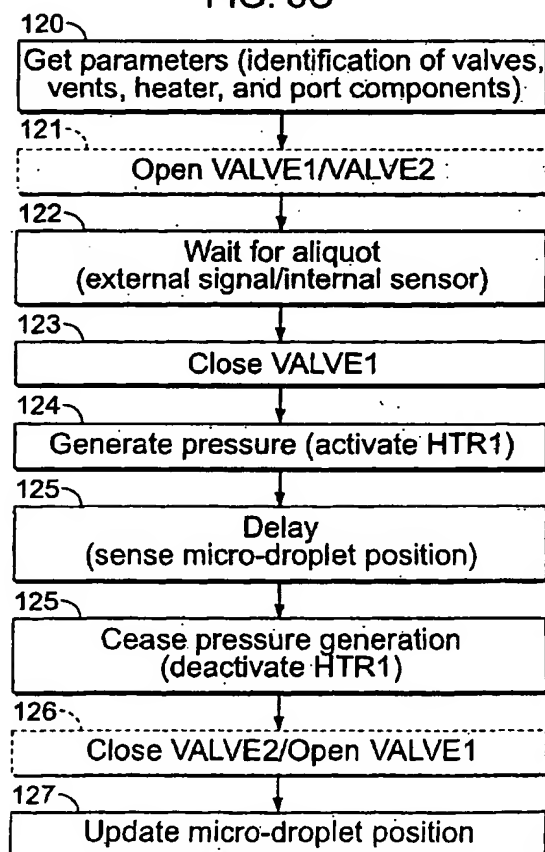


FIG. 8D

***Response to Arguments***

Applicant's arguments filed 1/12/06 have been fully considered but they are not persuasive. Applicant's arguments hinge on amending claim 1 such that the microheater and temperature detector are on a inside the reaction tank. These arguments are rendered moot by the combination of Shipwash and Handique et al. (See above).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 571-272-2422. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

  
Michael P. Mooney  
Examiner  
Art Unit 2883

  
Frank G. Font  
Supervisory Patent Examiner  
Art Unit 2883

FGF/mpm  
3/29/06